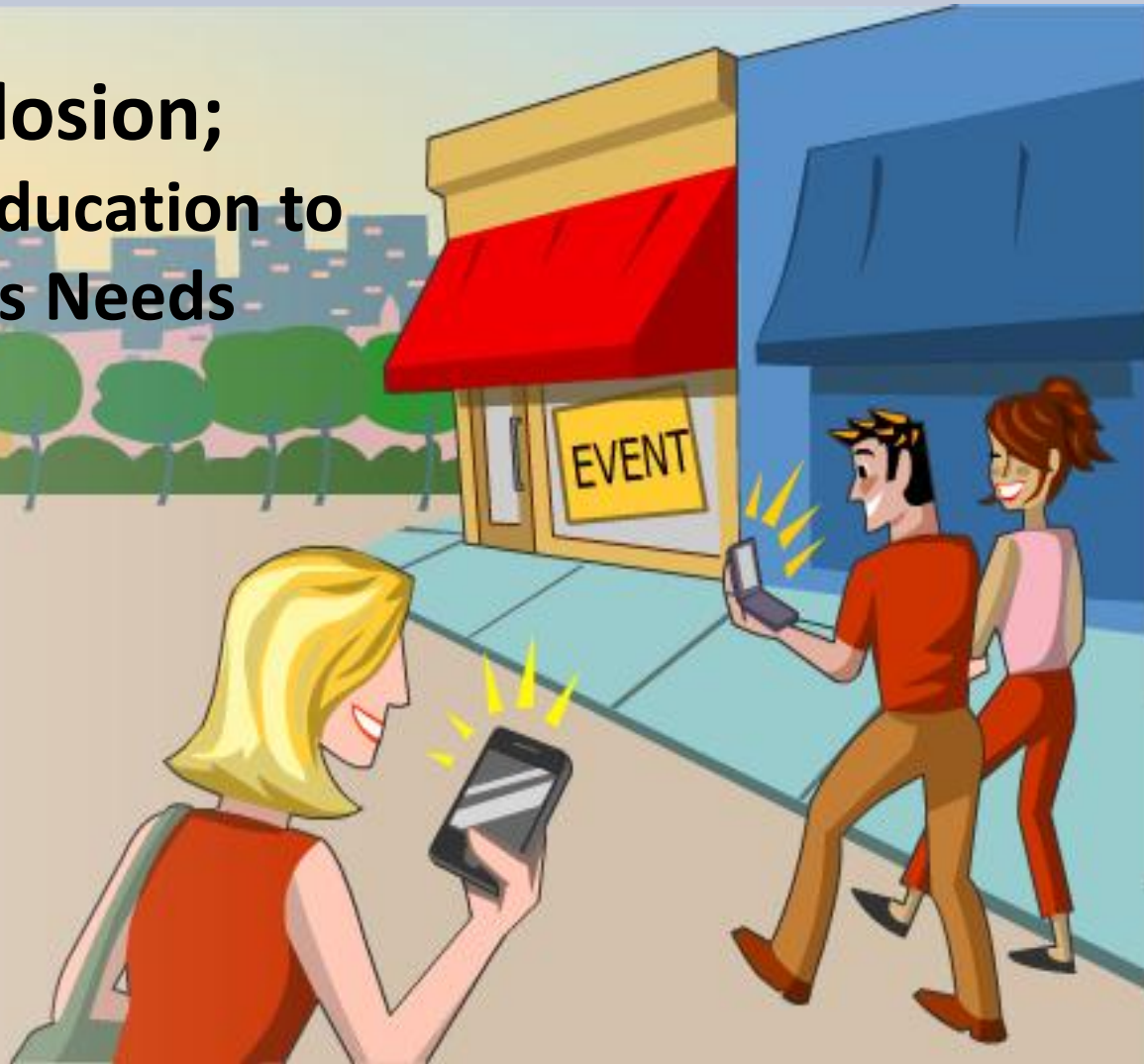


The Mobile Explosion; The Opportunity for Education to Align with Business Needs

Presented by:



What is MTAM?

- MTAM is the **Mobile Technology Association of Michigan**, a non-profit trade association for Michigan's mobile / wireless technology industry
- Open to: <http://GoMobileMichigan.org>
 - Companies, government, educational institutions, non-profit organizations, individuals and students
 - Working in mobile / wireless industry, or
 - Utilizing mobile / wireless technologies in their own industry verticals, or
 - Just interested in learning more about the technology
- Also the statewide producer / sponsor of Mobile Monday Michigan, a non-profit networking / education organization for those interested in the technology <http://MobileMondayMichigan.org>
- Currently chapters in:
 - Ann Arbor
 - Detroit
 - Grand Rapids
 - Lansing



Understanding Your Current Perspective

- How many of you have a mobile device (cell phone or tablet)?
- How many have 2?
- 3 or more mobile devices?
- How many of you feel mobile devices have no place in the classroom?
- How many of your institutions are currently utilizing mobile/wireless technologies in the classroom as learning tools?
 - Mobile devices (tablets or cell phones)
 - Apps / mobile websites
- How many of your institutions are utilizing mobile/wireless technologies to improve productivity at your facilities?
 - Communication with students, parents, staff
 - Process improvement
 - Managing / tracking resources
 - Marketing

Michigan and Mobile Technology

What role does mobile / wireless technology play in Michigan, and what will its' impact be on the state's businesses and economy?

The impact of Mobile in Michigan

The mobile / wireless industry has a very high Jobs Creation Factor of 3.9; this factor is one of very few comparable to the state's manufacturing industry.

This means:

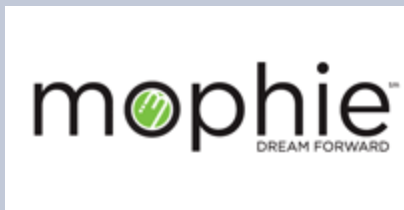
1 mobile/wireless-related job created = 3.9 additional jobs



Michigan Companies of Interest



Solid state re-chargeable
lithium ion batteries



Intelligent devices &
accessories; North American
distribution from MI



Wireless re-charging



Architectural lighting
'IntelliStreets'



Ford's mobile
platform



HandEholder Apple
accessories



'Gorilla glass' for mobile
devices, tv's, etc.



One of the largest
credit card processors
in the U.S. & a national
mobile payments
service
'Pay Anywhere'



Touch screens

Mobile Technology: Opportunity for
Education to Align with Business 2013



GM's mobile platform

What role is Michigan currently playing in the mobile/wireless industry?

- Michigan is the global leader in the Telematics sector of the mobile / wireless industry
- There are currently over 47,000 Michigan residents employed in mobile-related positions in over 2300 companies in the state (MEDC)
- Mobile Technology Association of Michigan (MTAM) has set a goal to create 9,250 new mobile / wireless industry jobs by the end of 2015; per MEDC data, achievement of this goal will also result in the creation of over 35,000 non-mobile-related jobs in the state and over \$1.7 Billion in salaries / wages for Michigan residents
- Per MEDC data, the average compensation for a mobile / wireless-related position in Michigan is over \$63,000 annually (*an equivalent cost-of-living to a Silicon Valley salary of \$145,000*)
- MTAM's mobile industry networking / education organization, Mobile Monday Michigan, currently has 4 chapters in Michigan (Ann Arbor, Detroit, Grand Rapids, and Lansing) with over 2300 members to-date
- Michigan's **Top 5** mobile development companies alone (*ranked by aggregate app downloads*) are responsible for over 30 million app downloads
- Ann Arbor's year-long test funded by the NTSA of V2X technologies
- Hosting a 2014 Global World Congress event for the Intelligent Transportation Systems industry; bringing over 10,000 people to Detroit for this event.

What else do we know about the mobile / wireless industry and its potential impact that can benefit Michigan?

- Wireless broadband investment will create as many as 205,000 U.S. jobs by 2015 (CTIA)
- Wireless economic contributions have grown faster (16%) than the rest of the economy (3%) (CTIA)
- Wireless jobs pay greater than 50% higher than the national average of other production workers (CTIA)
- The value of the global mobile / wireless industry has surpassed \$1 Trillion annually. Of note, only 3 other industries have achieved that level of annual revenue: automobiles, food and defense (Tomi Ahonen, mobile industry expert).
- If smart traffic mobile technology were fully utilized, fuel consumption on urban roadways could be cut by as much as 20% (CTIA)
- U.S. 4G wireless network investments will be between \$25 and \$53 Billion between 2012 and 2016; resulting in up to \$151 Billion in gross domestic product growth and between 371,000 and 771,000 jobs being created (CTIA)
- 40% of physicians indicate they could eliminate up to 30% of office visits thru mobile health strategies such as mobile monitoring and SMS (CTIA)
- The worldwide smart grid market will grow from \$20 Billion in 2010 to \$100 Billion annually by 2030 (Morgan Stanley)

Sectors of Opportunity for Michigan

- tele-matics
- machine-2-machine / mobile-2-machine
- mHealth
- Mobile business apps (as opposed to consumer-oriented apps)



Specific Opportunities Available:

- Battery industry
- Mobile industry supply chain to draw assembly facilities from manufacturers (re-shoring)
- R&D; new product development (particularly M2M, V2V, V2X, mHealth)
- M2M manufacturing
- mHealth; products and services

Why is Mobile Technology an Opportunity for Michigan?

- Existing resources such as:
 - Global leadership capabilities in manufacturing and engineering
 - Exceptional 2-year and 4-year higher education institutions
 - An abundance of existing engineering and development talent in a wide variety of specialty areas
 - World-renowned healthcare institutions & medical research facilities
 - Recently developed media production facilities that were built to take advantage of entertainment industry tax incentives
 - International enterprise-level firms already leading the exploration of ways to utilize mobile tele-matics for maximum advantage
 - Award-winning mobile development firms already located in Michigan
 - A large existing mobile technology community including Mobile Monday Michigan chapters that to-date have collective membership of over 2300 across the state
 - Strong state-based resources and support for entrepreneurial-focused activities
 - A diverse base of enterprise-level firms willing to invest in the sourcing, hiring and training of mobile technology-related staff
 - Recent law / tax changes that make Michigan a more 'business-friendly' state for companies to start-up, operate, or expand businesses in
 - 1st U.S. Patent Office outside of Washington D.C.

Examples of Jobs Which May be Created

- Direct
 - Mobile technology use consultants
 - Mobile technology engineers
 - Mobile software developers
 - Mobile equipment installers (residential and commercial)
 - Mobile equipment manufacturers (consumer and commercial)
 - Mobile equipment maintenance technicians
 - Mobile training / education
 - Tower installation technicians
 - Mobile network Infrastructure installation and management
 - Remote monitoring of mobile technologies
 - Research
 - Mobile marketing / advertising
 - Many, many more!
- Indirect
 - Manufacturing, many specialty areas
 - Healthcare
 - Banking / commerce
 - Retail
 - Customer service / helpdesk
 - Electricians
 - Inventory management / warehousing
 - Business and consumer service industries
 - Accounting
 - Real estate
 - Education
 - Many, many more!

Mobile / Wireless Technologies: Used by Every Business Vertical

Understanding Mobile

- Multiple types of technologies
- Mobile is MUCH more than what consumers can do with a cell phone or tablet device
- ***Every business vertical will be affected by mobile technologies***

Why Mobile? Why Now?

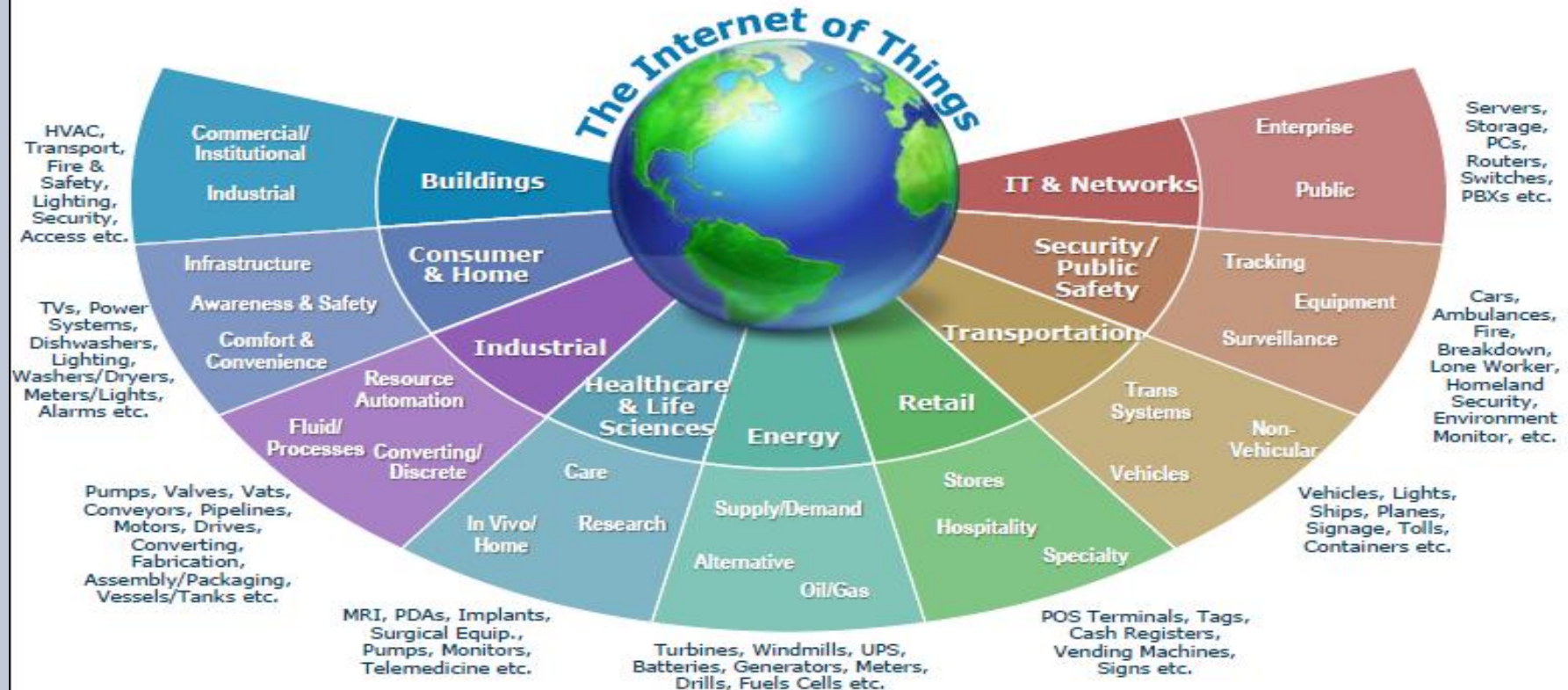
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Internet Of Things, M2M, Connected Devices...

Our Goal: Wirelessly Enable Everything (Yes: Machines too!)



Source: Beecham Research

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Mobile-2-Machine (M2M)

One of Michigan's biggest opportunities to bring manufacturing back to the forefront

- *100 – 200 million M2M connections today; expected to grow to 1 billion within 5 years*
- **60 billion** connected M2M devices by 2020

REMINDER: There are only 7 billion people in the world



What is the Impact of M2M in Terms of Jobs/ Businesses?



Jobs / Businesses Created by this Technology:

- research & development of the mobile devices
- manufacturing of the mobile devices
- transportation of the mobile devices to the consumer products firms
- installation of the mobile devices
- instruction writers to ease consumer use of the technology
- software developers to enable the communication between devices
- sales to the consumer electronics firms to incorporate the technology
- marketing / advertising jobs to promote the products to consumers
- and many more!

M2M Solutions – How Businesses Are Using Mobile

- **Automotive**

- Embedded Device Lifecycle Management
- Pervasive Computing/In-Vehicle

- **Energy and Utilities**

- Asset Management
- Infrastructure and Systems Management
- Automatic Meter Reading

- **Financial Services/Banking**

- Automated Solutions
- ATMs
- Kiosks
- Point of Sales



- **Government**

- Regulatory Compliance
- Security & Surveillance
- Tracking Management
- Transportation Management
- Customer Service

- **Insurance**

- Driver Behavior Analysis
- Mobile Workforce

- **Healthcare and Pharmaceutical**

- Patient Care and Services
- Physician Office Automation
- Computerized physician order entry



- **Retail**

- Logistics
- Self-Service solutions
- Kiosks, ATMs
- Point of Sale

- **Telecommunications**

- Network Infrastructure
- Network Management
- Service Management

- **Travel and Transportation**

- Security operations
- Track and Trace

- **Cross industry**

- Business Continuity
- Business Process Management and Integration
- Business Operations
- Inventory/Warehouse and Shipping

M2M Solutions – How Are Businesses Using Mobile (cont'd)



- **Management**
 - Production/Operations and Logistics
 - Security and Disaster Recovery
- **Computer Services**
 - Security
- **Customer Relationship Management**
 - Field Services Effectiveness
 - Sales Productivity
- **Digital Media**
 - Distribute Digital Media
- **Mobile Commerce**
 - Cashless Mobile Payments
- **Product Lifecycle Management**
 - Engineering and Analysis
- **Supply Chain Management**
 - Supply Chain Management Services
- **Surveillance and security**
 - Security event management
 - Security systems and operations

Mobile/Wireless Impact on Students and the Education Community

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BYOT: Bring Your Own Technology

[NBC Nightly News clip](#)

"We must use technology to empower teachers and improve the way students learn. At its best, education technology will change the face of education by helping teachers manage the classroom and personalize instruction."

- Joel Klein, former New York City schools' chief who now leads News Corp.'s education tablet program

National Impact of Mobile in the Classroom

- 40% of students or teachers use a tablet device in their Advanced Placement and National Writing Project classrooms (Pew Research Center's Internet & American Life Project)
- 57% of children use tablets for educational apps (Nielsen)
- 7 out of 10 children under the age of 12 in a house with a tablet used them (Nielsen)

Increased Broadband Access in Michigan Via Mobile Has Shown Impact in Education

- As school districts' average broadband availability increases, so also do math and reading proficiency scores for students in grades 3 through 8.
- In addition, school districts with higher average broadband access have a greater share of students who meet ACT college readiness benchmarks – mobile technologies help facilitate that increased access
- 1 in 7 households reported that the main reason for subscribing was that someone in their home needed broadband for school.
- Among Michigan adults who subscribe to mobile broadband service on their cell phones, 14% (representing nearly 300,000 Michiganders) say they use their cell phone to access online classes or conduct research for schoolwork.
- Nearly one-half of adult Michigan Internet users who have taken some college courses (49%) pursue further education online, compared to 29% of Internet users with a high school diploma or less.

Students Use of Mobile and the Internet

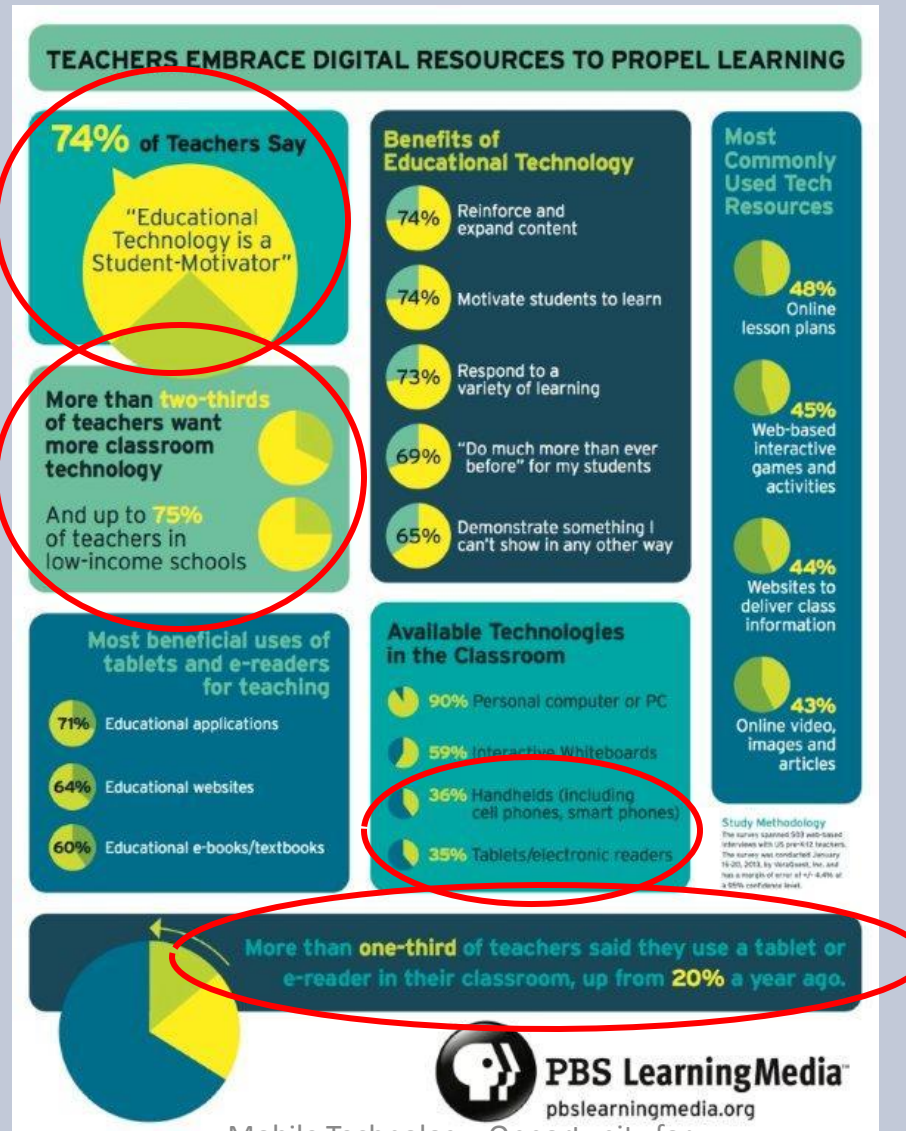
- Younger Children
 - 2/3 of 4-to-7 year olds have used an iPhone or iPod
 - 6% of 2-to-5 year olds have their own smartphone
 - 50% of 11 year olds have their own cell phone
 - 10% of households with children 6 – 12 have iPads (compared with only 3% of other households)
 - 35% of households with young children plan to purchase a tablet device in the next year
 - 72% of the 100 top-selling education apps in the Apple App Store are aimed at pre-schoolers and those in elementary school
 - Over 25% of 2 – 5 year olds and over 40% of 6 – 8 year olds use the Internet
 - 88% of 6 – 8 year olds use the Internet to play games; 37% to get help with homework; 25% to review information that interests them and 22% to read and write email
- Tweens / Teens
 - Kids 11-to-14 spend an average of 73 minutes / day sending texts
 - The average teen sends more than 50 texts a day

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How Can Education as an Industry Maximize the Mobile/Wireless Opportunity, and Best Prepare Students for Careers Where This Knowledge Will be Required?

Perspective from the Education Community

- [Mobile Computing at Trinity Intermediate School in Keller, TX](#)
- [St. Mary's, OH school using Mobile Learning Devices](#)
- [Secretary of Education Arne Duncan about the cell phone in the classroom](#)

Additional Videos/Content You May Want to Review on Your Own

- [Cellphones in the Classroom: Learning Tools for the 21st Century](#)
- [Students use smartphones in the classroom](#)
- [Engage Students in the Class Using Cell Phones](#)
- [Mobile Learning Institute](#)

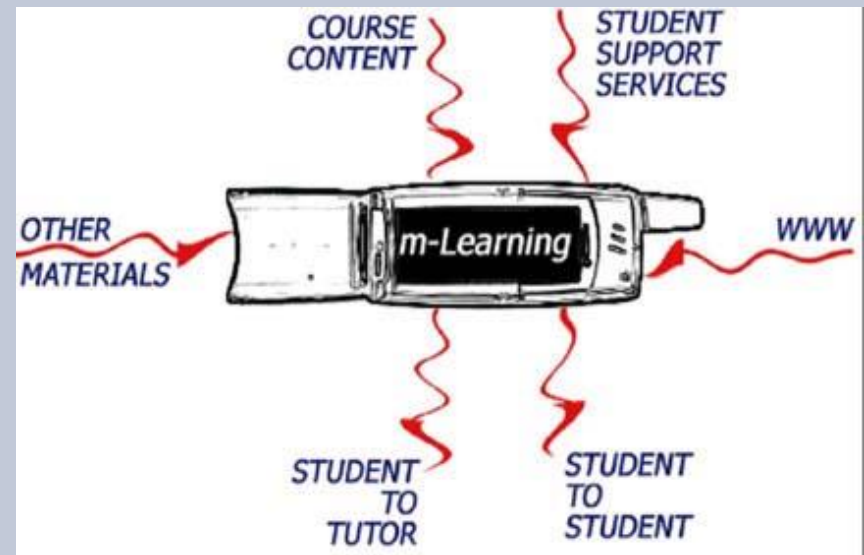
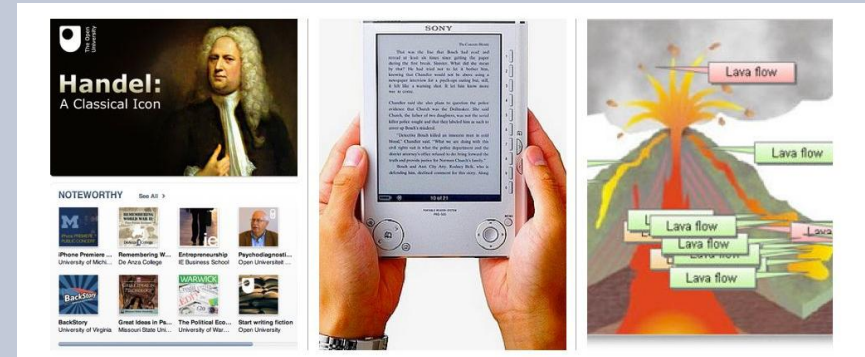
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Mobile in Education



Where to Start – as educational institutions

- Change rules preventing the use of student-owned devices in the classroom
- Train teachers on ways to incorporate the use of mobile technologies as part of the education experience; take away their fear of the devices
- Identify mobile apps and training tools that can facilitate teachers use of mobile technologies as part of the education experience and train them to utilize these tools
- Encourage teachers to utilize mobile technologies to communicate with both students and their parents
- Seek funds from grants or other resources to provide mobile devices to students who may not have access to their own mobile devices; develop programs that enable students to use these devices full-time (including outside of the classroom)
- Develop specific strategies for educating students about mobile technologies and the ways they will be incorporated into future career opportunities
- Partner with organizations like MTAM to devise programs that can incorporate member firms (national, statewide and local) that can contribute toward educational efforts

Where to Start – for students

- **K-12 General Coursework**
 - Have all students complete an introductory course to enable understanding of the many types of mobile technologies that exist and the wide diversity of career opportunities these technologies make available
 - Utilize mobile technologies as tools for the learning experience
- **K-12 Technical / Trade Coursework**
 - Incorporate courses related to mobile technology into all technical training specialty areas; help students understand how these technologies will impact their selected trade
 - Utilize mobile technologies as tools for the learning experience
 - Develop technical training areas specific to mobile; ie: mobile software development, wireless infrastructure, design and manufacturing of wireless devices, mHealth, mobile in law enforcement, etc.
 - Facilitate experiential learning opportunities (real-world learning) via internships, contests, research labs, on-the-job training programs, etc
- **Post Secondary**
 - Incorporate courses related to mobile technology into all majors; help students understand how these technologies will impact their selected career paths (ie: healthcare, manufacturing, transportation, etc.)
 - Utilize mobile technologies as tools for the learning experience
 - Develop majors specific to mobile; ie: mobile software development, wireless infrastructure, mHealth, M2M, mobile marketing, etc.
 - Work directly with the business community to understand their staffing / skills needs with regard to mobile/ wireless knowledge and capabilities; incorporate this information into the education landscape
 - Facilitate experiential learning opportunities (real-world learning) via internships, contests, research labs, on-the-job training programs, etc.

Visual Examples

Consider these opportunities;

What changes need to be implemented in our education system to prepare students for these types of opportunities?

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By Career Cluster

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Mobile in Manufacturing





Mobile in Agriculture

- Improving access to financial services, ie: mobile payments, mobile insurance.
- Provision of agricultural information, ie: prices, weather forecasts
- Data visibility for supply chain efficiency, ie: traceability and tracking of supply and distribution
- Enhancing access to markets, ie: trading or bartering platform.
- Equipment management



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mHealth



- 40% of consumers indicate they would pay for mobile remote monitoring;
- 40% of physicians say they could eliminate up to 30% of office visits thru mobile health strategies



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The Most Common Mobile Marketing Options



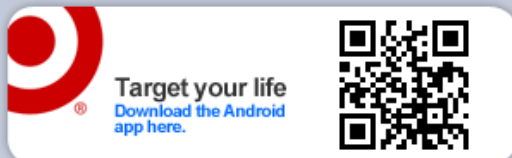
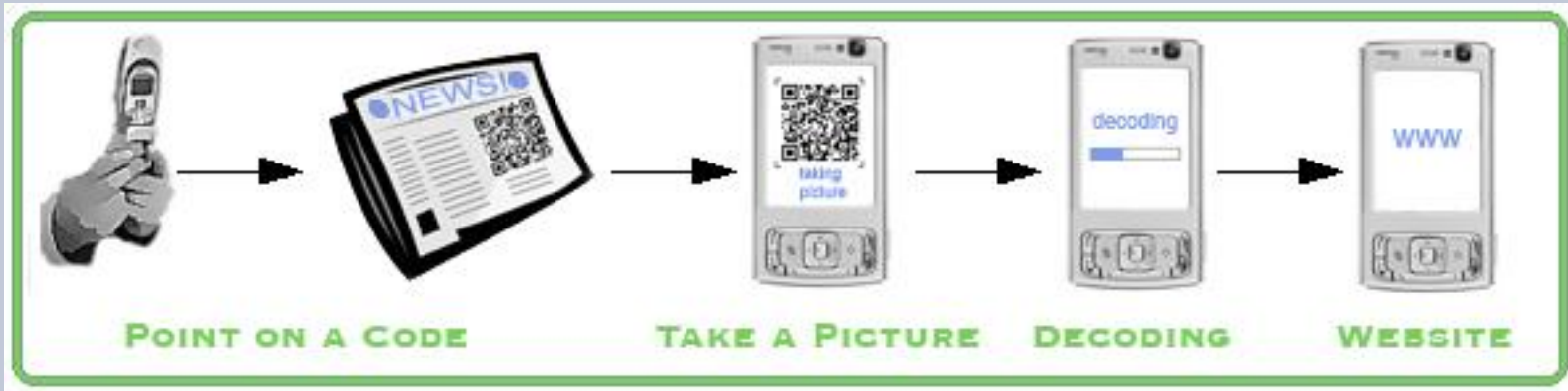
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Another Mobile Marketing Option



Wii. NOW IN BLACK.

BEST BUY

Buyer be happy.™

FREE 20 GIFT CARD
with the purchase of SUPER MARIO GALAXY 2 and Wii MotionPlus Remote.

42" CLASS 1080p LCD HDTV
42" measured diagonally, 3 HDMI inputs.
[CCL5120] S&K: 9/9/10/77 Reg. \$1099

SAVE '90
809⁹⁹

NEW Wii Console Bundle in Black
Includes Wii hardware, Wii Sports, Wii Sports Resort, a Wii remote and nunchuck, and Wii MotionPlus. Also available in white.
[CCL5057] S&K: 9/9/10/13 Limited quantities. No receipts.

199⁹⁹

Wii Remote with MotionPlus
[CCL5057] S&K: 9/9/10/13

Watch a trailer of SUPER MARIO GALAXY 2 on your phone in 3 easy steps:
1. Text 88YAPP to 32211 to download the updated app. 2. Launch the reader app. 3. Hold your phone over the special code (at left) or over the picture of the TV.

*Products must be purchased on same receipt. Gift Card good toward future purchases. Online offer may vary. *Data subject to change. **RegDVR rates may apply. TV scan works only with iPhone. †Go to www.FBI.org for video game & cheat computer software game rating information. Prices and offers good May 23-29, 2010. © 2010 Best Buy



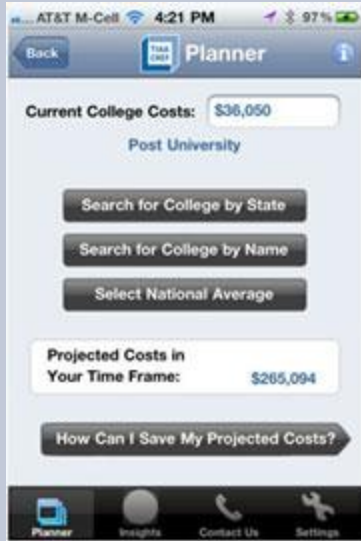
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Mobile in Government



Michigan Education Savings Plan



Michigan Dept. of Human Services



Michigan Camping & Recreation Locator



Michigan Lottery



Mobile Technology: Opportunity for Education to Align with Business 2013

Mobile in the Military

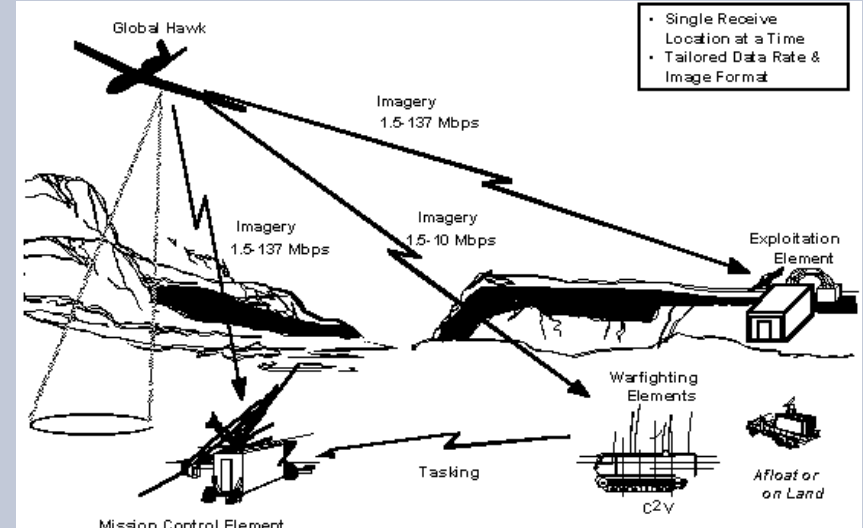


A 120mm GPS-equipped mortar knows where it's going. (credit: US Army)

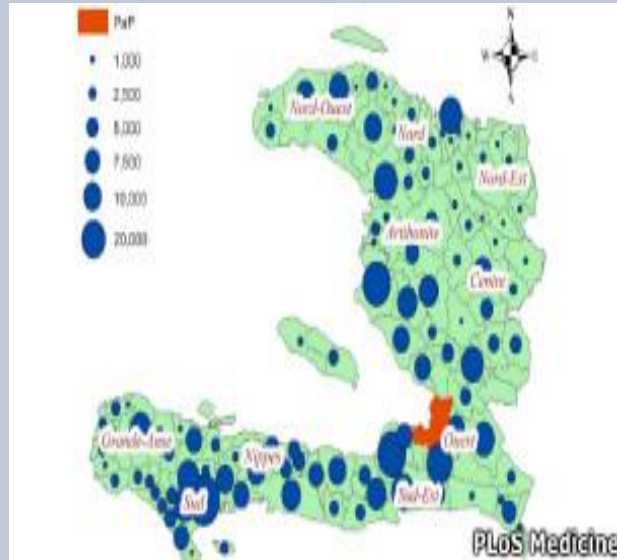


The average American uses GPS to navigate a road trip or find cheap gas on the way home from work.

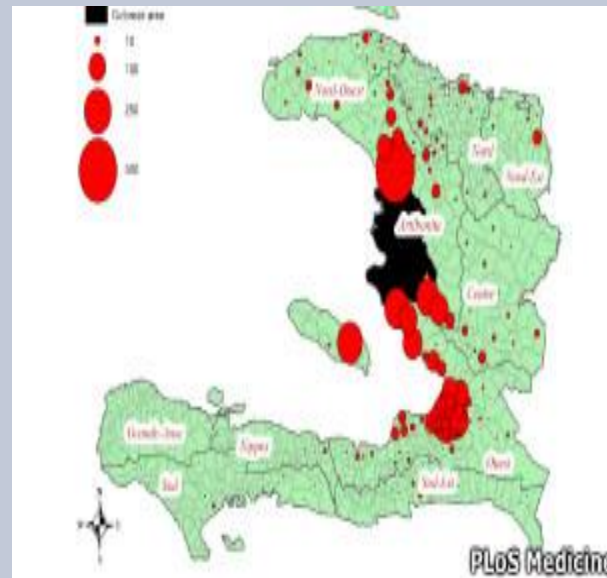
Meanwhile, the U.S. Army has long been busy coming up with ways to harness GPS & other mobile technologies for warfare.



Emergency Management



Estimated distribution of Haiti population 19 days after the earthquake



Estimated population location during Haiti cholera outbreak

- Researchers used anonymised information about the phone towers people were using.
- From that data, they estimated 600,000 Haitians had left the capital in the first 19 days after the crisis, and were able to locate concentrations of displaced people on a map.
- Scientists forwarded this analysis to aid coordinators in the field so supplies could be targeted to specific locations

Why Mobile? Why Now?

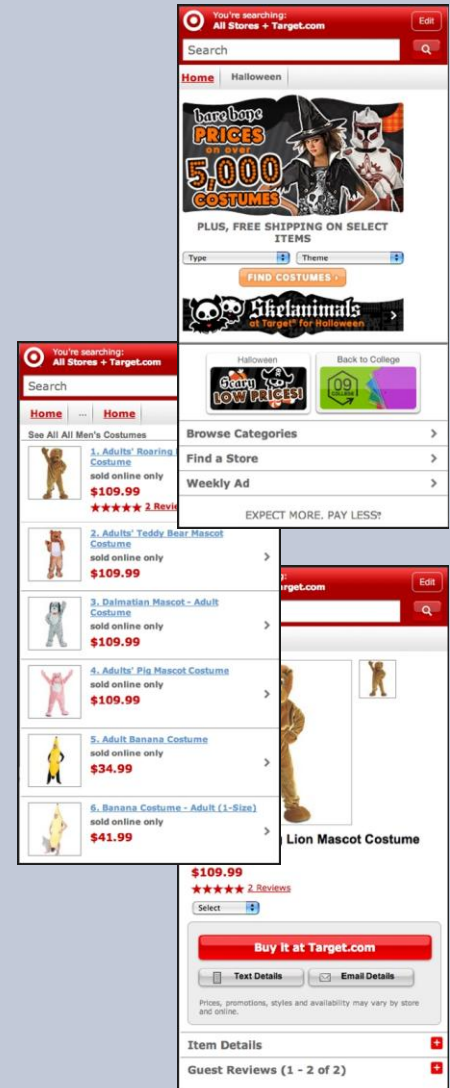
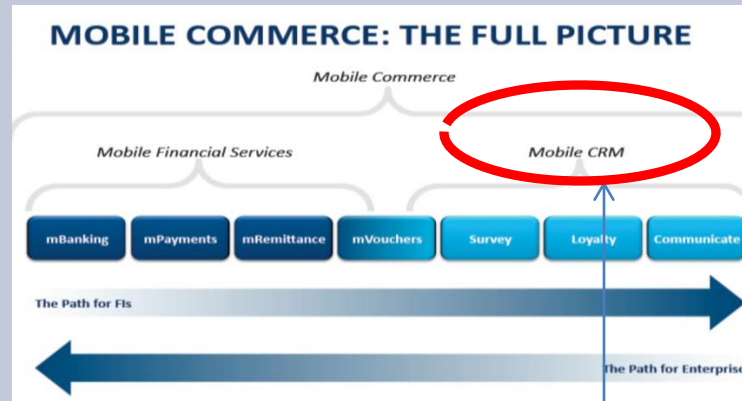
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Mobile Commerce

Big Data



Useful for:

- B2B
- Government
- Retailers, etc.

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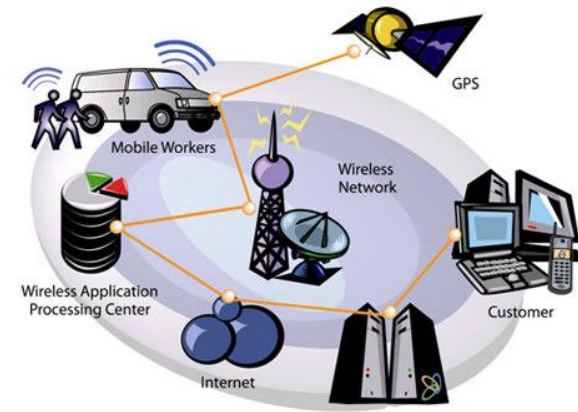
Transportation, Distribution, Logistics *Tele-matics / Connected Vehicle (V2V)*



Example of Augmented Reality technology use



Mobile Technology: Opportunity for Education to Align with Business 2013



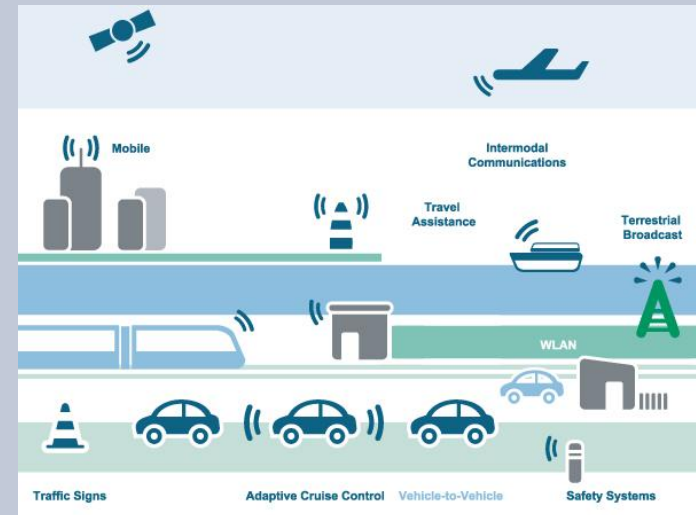
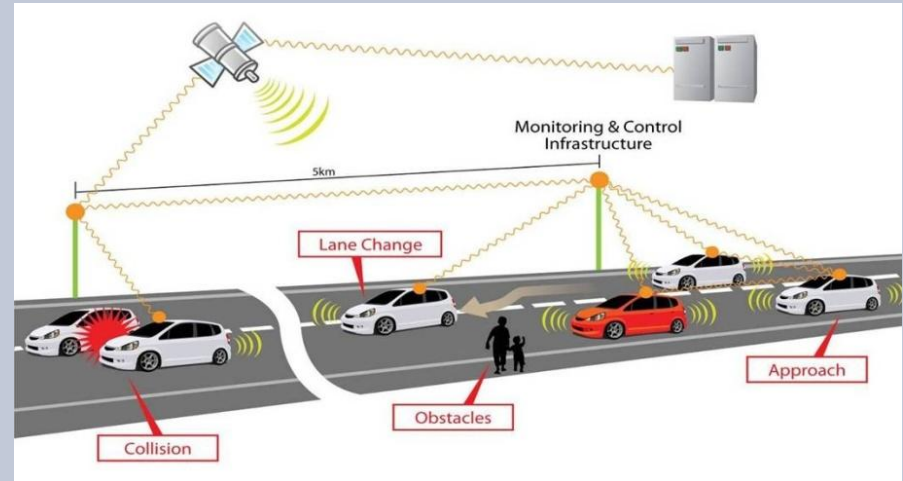
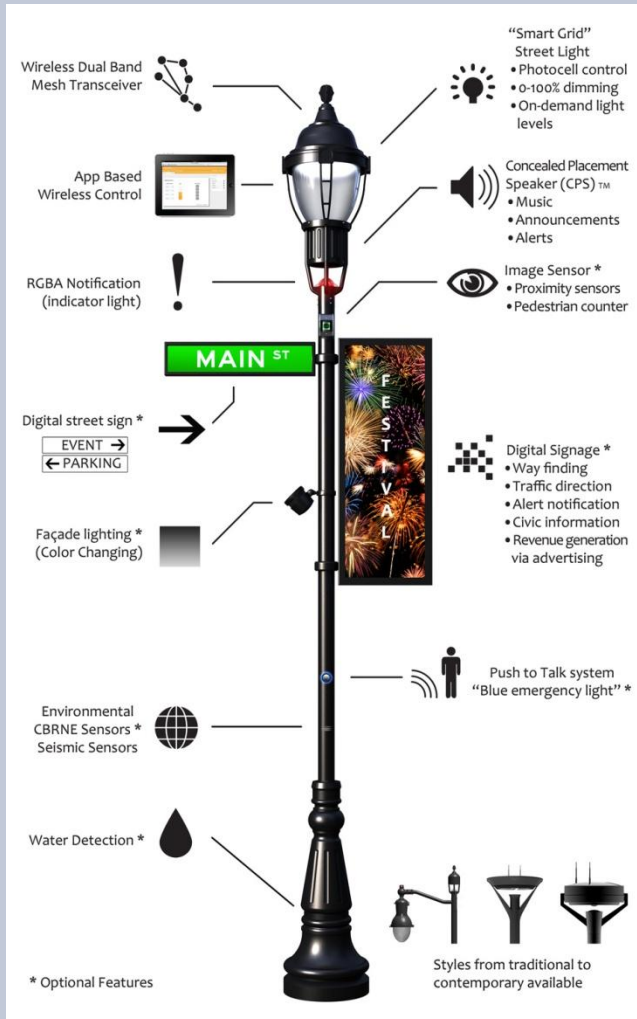
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Vehicle to Infrastructure (V2X)



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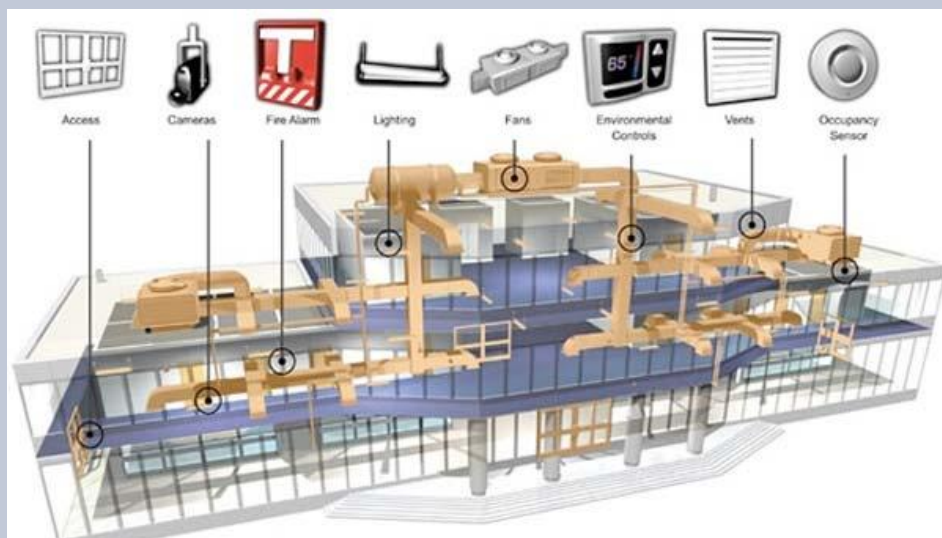
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The Smart Home / Commercial Buildings



- Analyst firm [Berg Insight](#) is claiming that smart home installations will be a \$9.5 billion market by 2015, up from \$2.3 billion last year.
- Growth in home / business installations will also mean a big boost in revenue for installers and manufacturers of mobile technologies, and the need for more firms to provide these services.**



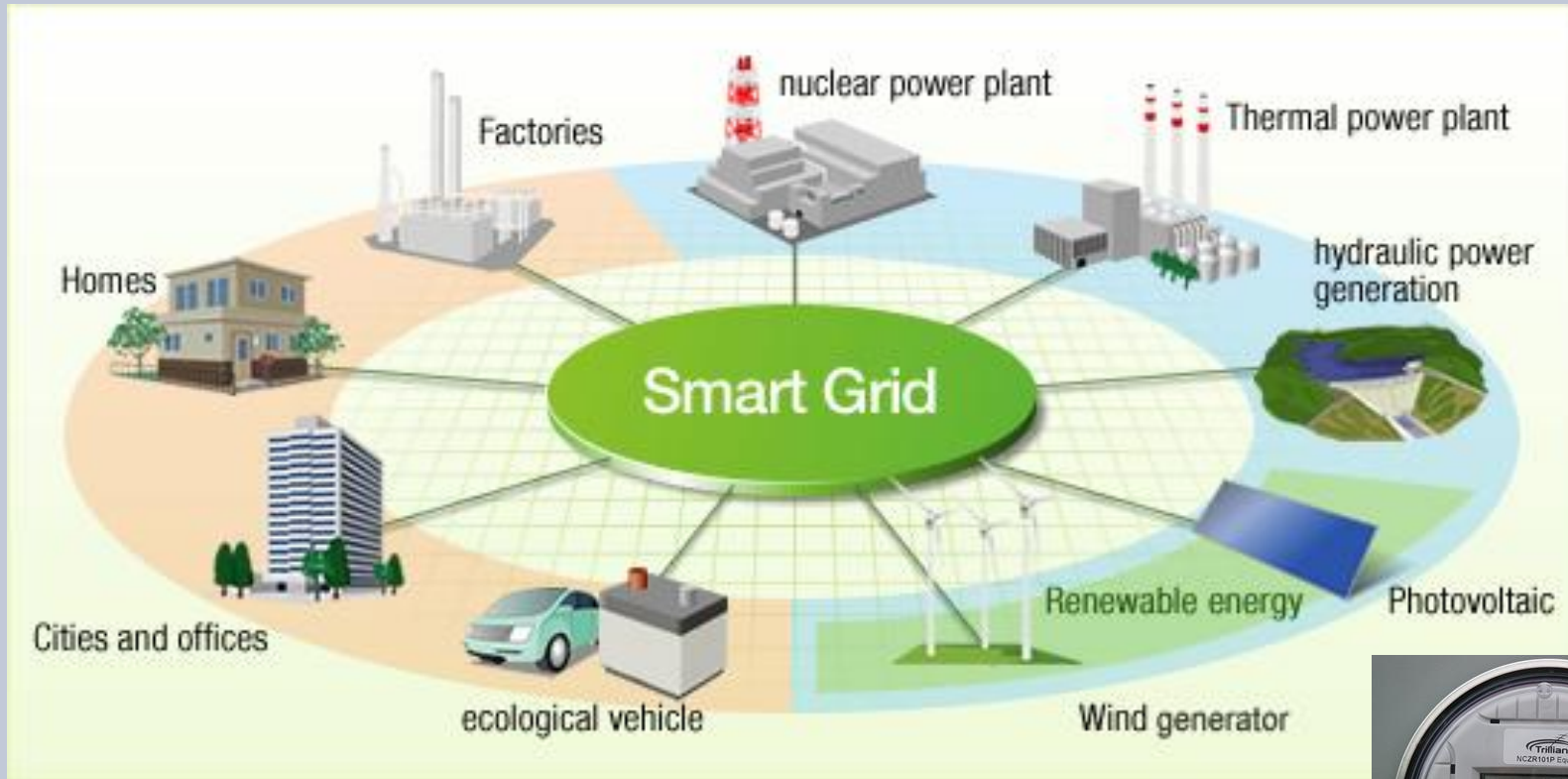
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Utilities



Bottom line:

Michigan is becoming a national leader in the mobile / wireless industry.

Many new businesses and good-paying jobs will be the result!

Our students need to be prepared...
in order to keep them here, and in order to
give them the best opportunities.

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QR Code / Mobile Website



scan this code

To scan this QR code, you will need a free QR reader, which you can download from your smart-phone's app store.

We recommend:



Barcode Scanner
i-nigma
BeeTagg
NeoReader



i-nigma
BeeTagg
NeoReader



palm
BeeTagg



BlackBerry
Messenger
BeeTagg